

## CLAIMS

What is claimed is:

1. An optical pickup actuator for driving, via a magnetic driving unit, in focusing, tracking, and tilting directions, a bobbin on which an objective lens is disposed, comprising at least one damping member disposed at a position where great changes in the optical pickup actuator occur when the magnetic driving unit drives the bobbin in one of the focusing, tracking, and tilting directions, so that a size of a second resonant peak is reduced.
2. The optical pickup actuator of claim 1, wherein the magnetic driving unit includes: first magnets disposed at opposing sides of the bobbin, respectively; tracking coils which are wound around the bobbin to oppose respective ones of the first magnets; second magnets which are spacedly disposed from respective ones of the first magnets, respectively; and focusing coils which are wound between the first magnets and the second magnets, wherein a first damping member is disposed at a center portion of the focusing coils.
3. The optical pickup actuator of claim 2, wherein the bobbin has corners and second damping members are respectively disposed at each corner.
4. The optical pickup actuator of claim 3, wherein a metallic heterogeneous material is mixed with the second damping member.
5. The optical pickup actuator of claim 3, wherein a metallic heterogeneous material is mixed with the first damping member.
6. The optical pickup actuator of claim 1, wherein the bobbin has corners and at least one of the at least one damping member is disposed at each corner.
7. The optical pickup actuator of claim 1, wherein a metallic heterogeneous material is mixed with the at least one damping member.

8. The optical pickup of claim 1, wherein the bobbin is movably supported by plural suspension wires.

9. The optical pickup actuator of claim 2, further comprising:  
first yokes to which the first magnets are respectively attached;  
second yokes to which the second magnets are respectively attached; and  
third yokes to which the third magnets are respectively attached.

10. An optical pickup actuator comprising:  
a base;  
a moving unit in which an objective lens is disposed at a side thereof and having a receiving hall at a center thereof;  
a damping member disposed at at least one location where changes of the actuator occur most frequently;  
a bobbin which is receivable in the receiving hall so as to move together with the moving unit; and  
a magnetic driving unit disposed in the base and which drives the moving unit in focusing, tracking, and tilting directions.

11. The optical pickup actuator of claim 10, wherein the magnetic driving unit includes:  
focusing coils which are wound around the bobbin;  
tracking coils which are wound around a side of the bobbin and are disposed at the center portion of the receiving hall; and  
first and second magnets disposed at sides of the tracking coils.

12. The optical pickup actuator of claim 11, wherein a metallic heterogeneous material is mixed with the damping member.

13. The optical pickup actuator of claim 10, wherein a metallic heterogeneous material is mixed with the damping member.

14. The optical pickup of claim 14, wherein the bobbin is movably supported by plural suspension wires.

15. The optical pickup apparatus of claim 14, wherein the receiving hall has shoulders at opposing sides thereof, and wherein the at least one location where changes of the actuator occur most frequently are the shoulders.

16. The optical pickup of claim 14, further comprising:  
a first yoke to which the first magnet is attached; and  
a second yoke to which the second magnet is attached.

17. The optical pickup of claim 24, wherein the bobbin includes a first guide hole, the receiving hall includes a second guide hole, and the first and second yokes are respectively received by the first and second guide holes.

18. A method of reducing a frequency of a second resonance peak of an optical pickup, comprising  
damping vibration of the optical pickup during tracking at at least one location where the great change occurs during the tracking.

19. The method of claim 26, wherein the damping includes at least one of damping vibration at a center of focusing coils of the optical pickup and damping the vibration at corners of a bobbin of the optical pickup.

20. The method of claim 27, wherein the damping includes inserting a damping member at the at least one location.

21. The method of claim 20, wherein the damping member is mixed with a metallic heterogeneous material.

22. A method of increasing a gain margin of an optical pickup, comprising

reducing a frequency of a second resonance peak of an optical pickup by damping vibration of the optical pickup during tracking at at least one location where the great change occurs during the tracking.

23. The method of claim 22, wherein the reducing includes at least one of damping vibration at a center of focusing coils of the optical pickup and damping vibration at corners of a bobbin of the optical pickup.

24. The method of claim 23, wherein the reducing includes inserting a damping member at the at least one location.

25. The method of claim 24, wherein the damping member is mixed with a metallic heterogeneous material.